

## The Survival of Eugenics in 20th-Century Germany

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After the Second World War, a U.S. intelligence services officer investigating the Kaiser Wilhelm Institute for Anthropology and Human Heredity commented that one German anthropologist was 1,000 times more guilty than an ordinary SS man (Weindling 1989). Yet, despite the Nuremberg medical trials and denazification tribunals, there was remarkable continuity of eugenically minded geneticists, who, after 1945, were appointed to newly founded chairs and to institutes of human genetics (Koch 1985). At the same time certain leading geneticists (notably, Hans Nachtsheim) were concerned that the reaction against Nazi racism should not lead to the wholesale condemnation of eugenics, so that eugenic prescriptions could continue to be derived from human genetics.

Despite the condemnation of Nazi racism, the 1950s saw an exercise in historical revisionism; the attempt was made to rehabilitate the eugenically based medical and welfare measures from the period before the Nazi takeover in 1933. There was also insistence that certain Nazi measures, notably compulsory sterilization, were medical, rather than radical, measures (Nachtsheim 1952). The distinction was drawn between Nazi racism and a humane science of eugenics, which was consistent with democracy. While these arguments contained much that was tactical and polemical, they also suggested that differentiating human genetics from eugenics has been problematic, and here the German case may be taken as providing insight more generally into the difficulties of formulating programs of medical and social action from human genetics research.

It has been argued, by Kevles (1985) for the United States and Great Britain and by Weingart et al. (1988) for Germany, that the emergence of the discipline of human genetics marked a fundamental break with eu-

genics. The process of the emancipation of human genetics from eugenics that Kevles (1985) dates as occurring from the 1930s in Britain and the United States is much harder to date for Germany. Weingart sees its origins as occurring in the early 1940s, but the completion of the breakthrough of a new discipline of human genetics in Germany as occurring only in the 1960s. The aim of this paper is to scrutinize this claim. I will suggest that the history of human genetics in Germany did not begin in the 1960s, in 1945, or even in the late 1930s but that its origins were earlier—i.e., in the era of rediscovery of the Mendelian patterns of hereditary. Both before and after 1945 human geneticists were involved in eugenics movements, and human genetics was a means for eugenicists to extend their powers into the medical sphere. At the same time it is important to recognize that eugenics was not a monolithic movement that culminated in the Holocaust but that there were competing and evolving varieties of eugenics.

It would be comforting to heap all abuses of hereditary science onto leading Nazis such as Hitler and Himmler, because their demise would have removed an oppressive burden from hereditary science. But this interpretation overlooks how complex problems concerning the supposed genetic inheritance of ethnicity and social behavior predated and survived nazism. These problems relate to the application of genetics to clinical medicine, psychiatry, and sexology. While compulsory sterilization and the killing of mental patients came to a head under nazism, notions of a constitutionally mentally and physically degenerate residuum or of a social problem group were present in the emerging welfare and medical systems of imperial and Weimar Germany. Many geneticists initially had a disdainful attitude toward nazism, as being a vulgar rabble-rousing movement, and supported schemes for a scientifically planned and administered state in which eugenicists would dictate social policies. Here parallels may be drawn to the concerns of American and British eugenicists during the 1930s, to take a lead in medical, demographic, and welfare policies and to insist on immigra-

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tion controls, medical screening prior to marriage, and eugenic sterilization for mental defectives and other social misfits (Garver and Garver 1991).

That biologists and doctors were the dominant group in the German Racial Hygiene Society was indicative of the search for scientific solutions to the social problems of crime, poverty, and disease. The leading role of doctors and biologists in eugenics found parallels in the eugenics movements in North America, Britain, and France. The German eugenics movement supported the authoritarian notions of the doctor as a medical dictator: the notion that hereditary germs determined physical and psychological characteristics was reinforced by the notion of the scientifically trained doctor who could guide the nation toward better health on the basis of scientifically proved laws. The doctor, expert in hereditary biology, was to be a *Führer* of the Volk.

I would suggest that despite the political upheavals as Germany changed from empire to republic in 1918 and then from nazism to democracy in 1945, human geneticists were less slavish servants of any of these regimes but demanded positions of authority in order to conduct research and influence social affairs. Human geneticists developed a cohesive professional identity and networks of control over research and clinical facilities. Professional rivalries and scientific disagreements resulted in competition to secure support from external funding and governmental agencies. An example of this is the funding of the German Psychiatric Institute in Munich by the SS and the Ministry for the Occupied Eastern Territories (Weindling 1985). Mendelian genetics with its emphasis on hereditary units was often difficult to reconcile with the Nazi ideology of Germanic racial purity of blood and character. Yet competition in the search for sources of financial and institutional support meant that concepts, research methods, and practices could have authoritarian implications, as the Nazis recognized that the population survey techniques developed by human geneticists were useful in the construction of their racial utopia.

Not only were there competing groups of eugenicists under the Nazis, but it is also necessary to see how certain groups in the Nazi party and state were interested in using eugenics for a biological restructuring of German society. The Nazis were aware of the long historical pedigree of eugenics, and they conducted research into the history of the founders of the racial hygiene movement, such as Alfred Ploetz and Wilhelm Schallmayer, encountering the problem that many had socialist sympathies.

During the 1890s schemes arose for annual medical checks by a doctor trained in the science of heredity. Each citizen was to carry a health passport, and the doctor was to be a state official (Schallmayer 1892; Weiss 1988). The anthropologist Eugen Fischer (an authority on the white-Hottentot interbreeding in Namibia) called for a national network of clinics for biological screening of the population (Fischer 1913). Wilhelm Weinberg, a physician in Stuttgart, recommended that there be correlation of family genealogies with information on cause of death and on military and school medical examinations (Weinberg 1913). When the young doctor Alfred Ploetz returned from the United States in 1895 to publish a treatise on racial hygiene, he planned a second volume on the laws of human reproduction, believing that a humane form of eugenics would be based on screening for chromosomal abnormalities (Ploetz 1895; Weindling 1989).

My contention that human genetics has historical roots reaching back to the origins of the science of genetics can be supported by early reference to the human implications of genetics. Eugenics has often been seen as an offshoot of Mendelism, although the reverse was the case: medical thinking about preventing the hereditary germs of disease predated the actual discovery of the Mendelian laws and looked to human history for genealogical models. This borrowing from history and politics followed from cell biologists and embryologists, who conceived of the organism as a complex body like a state. Although much 19th-century cell biology and embryology was focused on simple marine organisms and amphibia, these were taken as models for more complex processes in humans and for the functioning of societies (Weindling 1991a). During the 1890s zoologists were constructing genealogies of the inheritance of characteristics, by tracing both maternal and paternal lines. August Weismann suggested that continuous selection and competition were necessary to prevent degeneration, as he drew an analogy between domestic animals and civilized races. In speculating on the immutable germ plasm, regardless of whether the totality of the cell, the nucleus, the chromosomes, or, indeed, the genes were interpreted as determining growth and form, what seems important is the underlying scientific quest for physical causal factors: medical scientists could then sift through the hereditary qualities of the total population. The supposed concentration of hereditary power in the nucleus or chromosomes was subsequently transferred to the gene.

In offering biological solutions to social problems, eugenicists were pioneering in shifting attention away



from epidemic infectious diseases to the problem of chronic degenerative diseases such as tuberculosis, sexually transmitted diseases, and alcoholism, which had long-term implications in terms of morbidity. Weinberg had a large insurance practice and analyzed the statistics of tuberculosis infection. As infectious diseases declined, chronic degenerative diseases prompted concern with hereditary health. In view of the fact that there was a lack of conclusive proof regarding Mendelian patterns of inheritance, interested physicians operated with a diversity of theories of heredity. Weinberg's clinical experience as an insurance doctor gave rise to his observations on the proportion of MZ and DZ twins and on the inheritance of the tendency to have twins. As Stern (1962) showed, Weinberg wrote his first papers without knowledge of Mendel's laws. He collected large bodies of data in order to investigate statistically the inheritance of cancer and tuberculosis. Other physicians studied the genetics of eye conditions such as nearsightedness. The psychiatrist Rüdin (1911) suggested that schizophrenia resulted from two recessive genes with a 1:16 ratio of incidence. The physician Pellazaeus, as well as L. Merzbacher, investigated the inheritance of spastic debility. Because experimental biology was part of medical education, German doctors applied research interests in genetics to their clinical practice.

These medical researchers pointed out that observation of individual cases of illness obscured important facts about the incidence and transmission of diseases. They argued for research on total populations and for measures documenting the health of future generations rather than of the individual sick. A corollary of this was that the doctor was misguided in treating individual cases, as the latent germs of sickness might be carried on to the next generation: such thinking undermined liberal concerns with the individual's rights to health and to choice in reproduction.

Geneticists urged the need to reconstruct national health after the crisis of defeat, political conflict, and economic collapse in the early 1920s. Funding for animal and plant genetics was obtained, as geneticists emphasized the medical relevance of their discipline to social and demographic problems of postwar reconstruction. The textbook of human heredity by Erwin Baur, Eugen Fischer, and Fritz Lenz (Baur et al. 1921) argued that a medically based population policy was necessary to repair both the numerical population losses and the medical and psychological damage of war and postwar turmoils. Yet, to argue as Glass (1981) did, that the eminent geneticist Baur only joined forces with

the racial hygienist Lenz because of outrage at the French occupation of the Rhineland, is to overlook Baur's long-standing nationalistic and eugenic commitments. Whereas Proctor (1988, pp. 47–63) portrays Lenz as an archetypal Nazi racial fanatic who was able to “don the guise of science,” I would suggest the reverse—that Lenz's scientifically based authoritarianism allowed Lenz to don the guise of Nazism. Lenz's talents as a medical geneticist should not be underrated. In 1923 Lenz produced a catalog of eye disorders, malformations, and metabolic anomalies, on a genetic basis. Human heredity studies gained textbooks, and researchers launched schemes for genetic data banks. In the early 1920s the clinician Weitz (1926) studied high blood pressure among siblings and over generations. The 1920s saw extensive genealogical screening programs. Rüdin in Bavaria and Rainer Fetscher (1933) in Saxony compiled registers of criminal biology by correlating data from medical, school, police, and social work agencies. From 1923, twin research provided a new methodology developed by Weitz, his student Verschuer, and Hermann Poll (Mai 1988). Weinberg (1930) was skeptical: he wrote that “valuable as the resemblance method is theoretically, it needs the proof of the independence of those characteristics whose common occurrence in twins should prove the uni-ovality, if it depends on a series of characteristics” (p. 3). Despite technical disagreements, the hereditary paradigm was extended to mental traits, such as feeble-mindedness, psychopathy, and bed-wetting.

The cases of Weinberg and Weitz suggest that the scientific originality of German human genetics in the 1920s has been overlooked. Weingart et al. (1988) suggest that, in Germany, there were no mathematical studies of heredity that were of any significance; whereas Mazumdar (1991) has shown that studies by Felix Bernstein, Lenz, and Weinberg were profoundly influential on the left-wing British geneticist J. B. S. Haldane and the statistician Lancelot Hogben in shaping their new science of social biology. Lenz's mathematical models were deployed by Lionel Penrose in his study of the causes of Down syndrome, which he correlated with maternal age. Penrose also used empirical demographic methods developed by Rüdin in Munich (Mazumdar 1991). Harwood (1987) has convincingly shown that Weimar genetics was not so much weak but substantially broader in intellectual scope (e.g., with studies of populations in the wild) and, when compared with *Drosophila* research in the United States, that many Germans pursued different lines of inquiry. By arguing that human genetics was intellectually weak and derivative



in interwar Germany, Weingart et al. could make a stronger case for the collapse of eugenics with the defeat of nazism. I would suggest that Weingart's evaluation of the weakness of German genetics in the 1920s is in urgent need of revision. By stressing the weakness of German genetics prior to 1945, the scientific strengths of human genetics after 1945 can be exaggerated.

From 1925, eugenicists such as Weitz and Fischer were involved in heredity counseling clinics, particularly for premarital examinations to establish hereditary health. After disputes over whether these clinics should be under lay or medical control, by 1928 there were 224 marriage-advice clinics in Prussia. Eugenics was integral to the social medicine of the Weimar Republic: there was scant regard for confidentiality and for individual rights, with systems of compulsory treatment and incarceration (von Soden 1988). Biological health was valued as a national resource rather than in individual terms. There was a drive for an authoritarian state during the 1920s, based on screening and collating of records. Here geneticists could have a role and indeed demanded research funds from the state because of the medical utility of their discipline. The marriage-advice clinics of the 1920s became centers for hereditary and racial welfare (Erb- und Rassenpflege): the data of these and other welfare agencies were used for Nazi ends of locating the (so-called) racially and socially degenerate.

A number of eugenicists were Jewish—e.g., Heinrich Poll, who committed suicide after failing to find to a suitable post in the United States; Richard Goldschmidt, who favored compulsory sterilization legislation; and the ophthalmologist Crzellitzer, who died in a concentration camp. Taken with the many Jewish and/or socialist doctors supportive of eugenics in Weimar social medicine, these examples indicate that the socio-biological characteristics of interest to eugenicists could be fundamentally distinct from the populist racism of many Nazis. The Hamburg professor of anthropology, Walter Scheidt, refused to carry out racial adjudications for the Nazi authorities, although he was compliant in other respects. While eugenicists readily acted as advisers to the state, they delayed in joining the Nazi party—for example, Lenz and Rüdin joined in 1937, and Eugen Fischer and Verschuer joined only in 1940. Such biographical data suggest that there was initially no necessary affinity between nazism and human genetics.

Disentangling human genetics from Nazi racial policies is a complex historical problem. Were there a handful of ideological fanatics while normal genetics research continued? Was the totality of heredity re-

search permeated with Nazi aims? Or were researchers in human genetics pursuing their own distinctive authoritarian agenda of a scientific dictatorship, gambling that the uncouth Nazis would not last long in power? This final question raises questions about the extent to which researchers in human heredity have used their scientific expertise to endorse authoritarian social systems and coercive measures.

The historical spotlight has recently focused on Josef Mengele and his links to Otmar von Verschuer, who from 1927 headed the human-heredity department in the Kaiser Wilhelm Institute of Anthropology, Human Heredity, and Eugenics. In 1933 Verschuer launched a new journal, *Der Erbarzt*, for medical genetics. During the 1940s Verschuer presided over a research group in hereditary pathology, the members of which were politically heterogeneous—from Wolfgang Abel (an SS officer and anthropologist) to Kurt Gottschaldt (a psychologist and ex-communist/socialist). Blood samples from, for example, gypsies in Auschwitz were taken for research on racially specific proteins that was carried out in conjunction with other research institutes, such as the Kaiser Wilhelm Institute for Physiology. Common to all the diversity of research problems, professional backgrounds, and political preferences was the conviction that genetics could be applied to every aspect of human biology and psychology. There is a chilling parallelism between the twin camps of the Nazi welfare organization, where Gottschaldt studied the psychology of achievement, and Mengele's pathological (in both senses of the word) concentration camp research. This heterodoxy of background but uniformity of scientific aims suggests that even those human geneticists who were not Nazi party members could pursue unethical medical research programs. Here, evidence from a systematic study of biologists under nazism merits consideration. Although in a sample of 440 biologists, 53.2% were Nazi party members, this does not exclude the possibility that other human geneticists undertook work supportive of racial policies (Deichmann 1991).

Far from being a regimented science in accordance with the crude anti-Semitism of Hitler's *Mein Kampf*, human genetics and population genetics flourished among a diversity of research groups, for the Nazis required experts trained in such specialties as genetics, serology, and demography in order to implement the efficient schemes of racial adjudication, deportation, and mass killing, as well as the grandiose schemes of racial engineering. Müller-Hill (1984) has portrayed a cohesive genetics establishment supporting Nazi racial



ideology of blood purity and anti-Semitism. Weingart et al. (1988) concede that innovative papers in human genetics were published in Nazi eugenics journals during the early 1940s. The term *Humangenetik* was used by the botanist Günther Just in 1940. Weingart et al. (1988) argue that certain geneticists used Nazi racial rhetoric only opportunistically, as a means of gaining research funds and improving career chances, while overlooking the possibility that eugenicists saw human genetics as a means of extending their powers into the medical sphere. It is in this context that the major research effort in human genetics and related sciences such as serology and microbiology should be evaluated. Nachtsheim transferred findings on the hereditary pathology of rabbits to human diseases such as epilepsy (Ruhensroth-Bauer and Nachtsheim 1944). Human genetics became integral to the Nazi effort to engineer the racially right sort of people. For example, the public health administration in the state of Thuringia shows a concerted effort to integrate Nazi racial ideology of blood and soil, the evolutionary biology of Ernst Haeckel, and human genetics and demographic studies (Weindling 1991b).

Because the Nazis distorted the image of Haeckel, this does not mean that Haeckel was a progenitor of Nazi racism, as suggested by Lerner's (1992) critique of biological determinism. I would similarly caution against simple links between Nazi racial ideology and human genetics, and I cannot accept Müller-Hill's (1984) and historian Robert Proctor's (1988) domino theory—that, from 1933, membership in a eugenics organization led first to support for compulsory sterilization, then to the killing of psychiatric patients and others deemed incurable, and finally to complicity in the Holocaust. Some eugenicists, such as Vershuer, did make such a progression, but others, such as the sterilization advocate Rüdin, were no enthusiasts for euthanasia. It was possible for clinical geneticists appointed by the Nazis to be profoundly alienated by the Holocaust. A distinction needs to be kept in mind, between (a) authoritarian social views backed up by scientific expertise and professional status and (b) Nazism. Each researcher's position requires careful evaluation. The Weimar eugenicist Fetscher can be seen as authoritarian in his social biological screening in the 1920s, but later he supported the resistance to Nazism, using his medical practice as a cover for clandestine meetings. There was mutual distrust between the Nazis and medical scientists; for example, certain psychiatrists referred to Hitler as a "psychopath." Hitler and Himmler were scornful of medical scientists, considering them to be

cautious bureaucrats. Lenz (1931) claimed that Hitler read the textbook of human heredity by the geneticists Baur, Fischer, and Lenz while imprisoned after the Munich putsch. If he did—and the evidence rests on Lenz's claim and on Proctor's (1988) unsubstantiated assertion that the book's publisher Julius Lehmann was at that time a Nazi party member (Lehmann did not join the party until 1932) (Stark 1981, pp. 222, 286)—it left no impact on Hitler's racial theory based on pre-Mendelian blending heredity. Some eugenicists were personally anti-Semitic (such as Rüdin, who, however, had a Jewish assistant, Kallmann), but others were Jewish, such as the twin researcher Poll, or half Jewish, such as Weinberg. Ploetz only confided his anti-Semitic prejudices to a small circle of Nordic enthusiasts, and until 1933 his racial hygiene journal (*Archiv für Rassen- und Gesellschaftbiologie*) did not address a "Jewish problem," and it was highly critical of vulgar anti-Semitism. It is thus inaccurate to say that the journal contained no critique of eugenics (Propping and Heuer 1991): what it did was to distinguish between scientific eugenics (i.e., as based on human genetics) and unscientific eugenics (as based on racial myths).

Weitz (a corresponding member of The American Society of Human Genetics from 1952) provides an instructive case study of a leading clinical expert in human genetics under nazism. The funding and scale of his research greatly increased after the Nazi takeover, and the Nazi public health authorities were supportive because of the need to involve geneticists in sterilization tribunals (indeed, Weitz was appointed professor in Hamburg, against the wishes of the university and to counteract the uncooperative Scheidt). That Weitz was the brother-in-law of Lenz and maintained a friendship with Vershuer indicates his central position among human geneticists. In 1936 Weitz established a Department for Twin and Hereditary Research in the Hamburg University Hospital, collecting data on 8,000 pairs of twins (Hünemörder 1991). Weitz believed that the duty of the German doctor was to defend the hereditary health of the population. He argued that heredity increased the risk of scarlet fever, diphtheria, stomach ulcers and appendicitis, circulatory diseases, and conditions such as obesity. While hardly a disease was free from the taint of heredity, he was also interested in the interaction of hereditary and environmental factors. He established a central registry of medical records, with over 1 million records by 1939, in order to locate MZ twins. Such a data bank was open to use by social workers and the police. Weitz was keen on extending compulsory sterilization to neurological conditions and



joined the Nazi party in 1937 and the SS in 1938. But this exact geneticist was also accused, by a Nazi official, of a complete lack of understanding of Nazi ideology. Weitz resigned from the SS in 1943, using a pretext that he was still a churchgoer but apparently because an assistant had informed him about the Holocaust. This resignation was sympathetically handled by the Nazi authorities, so illustrating how participation in the Nazi medical killing programs was essentially voluntary. Yet his shock at the Holocaust did not deter him from continuing to build up his hereditary data bank.

The case of Weitz lends support to the view that Nazi medical science and racial ideology were not monolithic but pluralistic: although the SS was gaining power, no orthodoxy was supreme in biology or medicine. Instead there was a dynamic situation, with competing groups each trying to outdo its rivals in pursuit of racial aims. In order to maintain funding, dangerous links were forged with the SS and other state and party agencies.

The collapse of the Hitler state in 1945 curbed the scope for the worst excesses but did not generate fundamental scrutiny of relations between the biological sciences and coercive social measures. Despite the removal of the Nazi menace, there was much support for voluntary sterilization and other eugenic legislation for family welfare. Nachtshiem, a long-term collaborator of Fischer and Verschuer, exemplifies the effort to sustain continuity in the genetics community. His research on rabbit eye color, epilepsy, and malformations paralleled Mengele's horrific human butchery. Gaining a chair in genetics at the Free University of Berlin, he did much to rehabilitate notions of coercive social measures. He helped ex-Nazi geneticists, such as Lenz and Verschuer, in gaining chairs of human genetics. There was a conservative and pronatalist ethos, exemplified in the eugenic orientation of the Pro Familia family-planning organization, in which Nachtshiem was a leading member. Nachtshiem's authoritarian agenda demanding eugenic sterilization was voiced in numerous papers and speeches. One example is a Pro Familia publication of 1966 by Nachtshiem (1966), called *Kampf den Erbkrankheiten*—the title having echoes of Hitler's *Mein Kampf*. Nachtshiem consistently attacked individualism from evolutionary and sociobiological perspectives by arguing that genetic diseases are diseases of civilization and are not present among primitive races in a state of nature. Negative eugenic methods such as sterilization and concerns with Lebensraum and the population explosion dominated the text, while education (based on the dictates of scientific authority) re-

placed coercion. Professional expertise was used to support authoritarian models of the social order: there was a lack of individual choice and democratic accountability in the development of new clinical and research structures. The situation was paralleled in East Germany, where the ethos was anti-Nazi but highly authoritarian. Here another member of the Eugen Fischer-Verschuer research group, the psychologist Kurt Gottschaldt, could for a time find a niche. While the history of human genetics in East Germany has yet to be researched, revelations are appearing about reckless medical experiments (on transplantation), the disregard for patient rights, and sociobiological diagnoses of opposition and dissent.

Nachtshiem's view that German genetics was weak prior to 1945 has been extended with observation that this weakness meant that geneticists did not criticize eugenics prior to 1933 (Propping and Heuer 1991). While there was a lack of effective criticism of eugenics (Weindling 1989), the verdict of the weakness of German genetics and human genetics is open to doubt. First, Harwood (1987) has found diverse and innovative lines of research in genetics in the Weimar period. I would argue that much of the work on animal and plant genetics (e.g., by Baur) was regarded as having direct relevance to human genetics. Second, Mazumdar (1991) has pointed to the importance that both the statistical genetics of Weinberg and the genealogical data banks of Rüdin had for the work of Haldane, Hogben, and Penrose. I would regard German research in human genetics as thriving in the interwar period, while recognizing that the research styles and issues were modified after 1945.

German eugenics did not represent a monolithic movement that culminated in the Holocaust and that was terminated by the eradication of nazism. This paper has sought to demonstrate the intellectual vitality of eugenic precursors to the Third Reich and successors, as well as to indicate that eugenics and the associated science of human genetics had an intrinsic diversity, even under nazism. Thus innovative aspects in human genetics after 1945 could be influenced by diverse intellectual, institutional, and individual precursors. Thus the energetic attempt to scrutinize this legacy by researchers (notably, Müller-Hill 1984) is highly commendable.

Additional speculations arise from these conclusions, speculations that may interest those concerned about current social and ethical genetic issues. The belief that in a liberal and democratic society there can be no abuses of genetics is not supported by the evidence



of Weimar eugenics or by certain attitudes expressed after 1945. Eugenically oriented welfare programs such as those of the 1920s were authoritarian and undermined civil rights. The German case reveals an unresolved contradiction between (a) liberal notions of intellectual and professional freedom and (b) civil rights. While scientists wish to guard their research and medical activities from outside interference, human genetics can be deficient in human rights. As funding, research strategies, and clinical procedures become more elaborate, the dangers of abuse also increase.

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